

Section 5: Using GROUP BY and HAVING Clauses

Objectives

- Construct and execute a SQL query using GROUP BY
- Construct and execute a SQL query using GROUP BY ... HAVING
- Construct and execute a GROUP BY on more than one column
- Nest group functions

Vocabulary

Directions: Identify the vocabulary word for each definition below.

_____ Used to specify which groups are to be displayed;
restricts groups that do not meet group criteria

_____ Divides the rows in a table into groups

Try It / Solve It

1. In the SQL query shown below, which of the following is true about this query?
_____ a. Kimberly Grant would not appear in the results set.
_____ b. The GROUP BY clause has an error because the manager_id is not listed
in the SELECT clause.
_____ c. Only salaries greater than 16001 will be in the result set.
_____ d. Names beginning with Ki will appear after names beginning with Ko.
_____ e. Last names such as King and Kochhar will be returned even if they don't
have salaries > 16000.

```
SELECT last_name, MAX(salary)
FROM employees
WHERE last_name LIKE 'K%'
GROUP BY manager_id, last_name
HAVING MAX(salary) > 16000
ORDER BY last_name DESC ;
```

2. Each of the following SQL queries has an error. Find the error and correct it. Use Oracle Application Express to verify that your corrections produce the desired results.
 - a.

```
SELECT manager_id
FROM employees
WHERE AVG(salary) < 16000
GROUP BY manager_id;
```

- b.

```
SELECT cd_number, COUNT(title)
FROM d_cds
WHERE cd_number < 93;
```
 - c.

```
SELECT ID, MAX(ID), artist AS Artist
FROM d_songs
WHERE duration IN('3 min', '6 min', '10 min')
HAVING ID < 50
GROUP by ID;
```
 - d.

```
SELECT loc_type, rental_fee AS Fee
FROM d_venues
WHERE id <100
GROUP BY "Fee"
ORDER BY 2;
```
3. Rewrite the following query to accomplish the same result:

```
SELECT DISTINCT MAX(song_id)
FROM d_track_listings
WHERE track IN ( 1, 2, 3);
```
4. Indicate True or False
 - _____ a. If you include a group function and any other individual columns in a SELECT clause, then each individual column must also appear in the GROUP BY clause.
 - _____ b. You can use a column alias in the GROUP BY clause.
 - _____ c. The GROUP BY clause always includes a group function.
5. Write a query that will return both the maximum and minimum average salary grouped by department from the employees table.
6. Write a query that will return the average of the maximum salaries in each department for the employees table.